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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,378	10/22/2003	Ho-Il Oh	5000-1-469	8663

33942   7590   12/11/2007
CHA & REITER, LLC
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EXAMINER
MUI, GARY

ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
12/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/691,378	OH ET AL.
	Examiner	Art Unit	
	Gary Mui	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>02 October 2007</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-8</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-8</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
       Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
       Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

2.   The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459

(1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness
        or nonobviousness.

3.   This application currently names joint inventors. In considering patentability of the

claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c)

and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4.   Claims 1 – 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al.

(US 7,180,910 B2).

For claims 1 and 5, Kim et al. teaches selecting a minimum bandwidth guaranteed for individual services requested by the ONUs from among an overall available bandwidth, and allocating the minimum bandwidth to the ONUs; if a current available bandwidth is found in the overall available bandwidth after allocating the minimum bandwidth to the ONUs sending the bandwidth request signal, allocating bandwidths requested by the ONUs when the sum of the bandwidths requested by the ONUs is lower than the current available bandwidth, determining new request bandwidths associated with the ONUs upon receiving magnitude and weight information of individual queues from the ONUs when the sum of the bandwidths requested by the ONUs is higher than the current available bandwidth, and performing bandwidth allocation in proportion to the determined request bandwidths (see column 2 lines 1 – 40; each ONU is allocated a fixed bandwidth and if there is additional bandwidth to allocated that bandwidth based on traffic descriptors and the amount of cells waiting in the ONU). Kim et al. fails to teach a GE-PON system but teaches the bandwidth allocation in an ATM-PON environment. It would have been obvious to one skilled in the art at the time the invention was made to use GE-PON in place to the ATM-PON as taught by Kim et al. The motivation for doing this is to increase the rate and the performance of the system.

For claims 2 and 6, Kim et al. teaches allocating bandwidths requested by individual queues when an available bandwidth allocated by the OLT is larger than the sum of request bandwidths of individual queues sending the bandwidth request signal, and allocating a minimum guarantee bandwidth according to priority information of the service classes when the available bandwidth is less than the sum of request bandwidths of individual queues; and

applying weights of individual service classes to a remaining bandwidth created by allocation of the minimum guarantee bandwidth within the available bandwidth, determining new request bandwidths associated with the queues according to the weights of the service classes, and allocating the remaining bandwidth in proportion to the determined request bandwidths (see column 2 lines 1 – 40 and column 4 lines 30 – 42; each ONU is allocated bandwidth and bandwidth is also assigned based on traffic descriptors; the state information of each ONU is also used to assign bandwidth). Kim et al. fails to teach a GE-PON system but teaches the bandwidth allocation in an ATM-PON environment. It would have been obvious to one skilled in the art at the time the invention was made to use GE-PON in place to the ATM-PON as taught by Kim et al. The motivation for doing this is to increase the rate and the performance of the system.

For claims 3 and 7, Kim et al. teaches a) allocating bandwidths requested by individual queues when an available bandwidth allocated by the OLT is larger than the sum of request bandwidths of individual queues sending the bandwidth request signal, and allocating a minimum guarantee bandwidth according to priority information of the service classes when the available bandwidth is less than the sum of request bandwidths of individual queues; and b) firstly allocating a bandwidth to a queue having the largest request bandwidth in a prescribed range of a remaining bandwidth created by allocation of the minimum guarantee bandwidth within the available bandwidth, and finally allocating a bandwidth to a queue having the smallest request bandwidth after sequentially allocating bandwidths to other queues (see column 2 lines 1 – 40 and lines 4 lines 30 – 42; each ONU is allocated bandwidth and with excess bandwidth it is allocated based on traffic descriptors and state

information of the ONU to meet the Quality of Service (QoS) requirements). Kim et al. fails

to teach a GE-PON system but teaches the bandwidth allocation in an ATM-PON

environment. It would have been obvious to one skilled in the art at the time the invention

was made to use GE-PON in place to the ATM-PON as taught by Kim et al. The motivation

for doing this is to increase the rate and the performance of the system.

For claims 4 and 8, Kim et al. teaches allocating bandwidths requested by individual queues

when an available bandwidth allocated by the OLT is larger than the sum of request

bandwidths of individual queues sending the bandwidth request signal, and allocating a

minimum guarantee bandwidth according to priority information of the service classes when

the available bandwidth is less than the sum of request bandwidths of individual queues; and

firstly allocating a bandwidth to a queue having the highest priority in a prescribed range of a

remaining bandwidth created by allocation of the minimum guarantee bandwidth within the

available bandwidth, determining new request bandwidths associated with the remaining

queues according to weights of individual service classes, and performing bandwidth

allocation in proportion to the determined request bandwidths (see column 2 lines 1 – 40 and

lines 4 lines 30 – 42; each ONU is allocated bandwidth and with excess bandwidth it is

allocated based on traffic descriptors and state information of the ONU to meet the Quality of

Service (QoS) requirements). Kim et al. fails to teach a GE-PON system but teaches the

bandwidth allocation in an ATM-PON environment. It would have been obvious to one

skilled in the art at the time the invention was made to use GE-PON in place to the ATM-

PON as taught by Kim et al. The motivation for doing this is to increase the rate and the

performance of the system.

Response to Arguments

5.   Applicant's arguments filed October 2, 2007 have been fully considered but they are not

persuasive.

In regards to the entire content of the remarks, in particular that the Kim reference fails to

teach determining the proportional bandwidth allocation based on "magnitude and weight

information of individual queues from the ONUs". The examiner respectfully disagrees. In

the Kim reference teaches allocating bandwidth to each of the ONUs proportionally to the

effective bandwidths of the corresponding ONUs, if the sum of the fixed bandwidths of all the

ONUs is larger than the available link capacity. The bandwidth that is allocated to the ONU

is determined on the basis of information about the traffic indicators of connections

established to each of the ONUs and about the number of non real cells waiting in each of the

ONUs. The traffic descriptors are updated for dynamic bandwidth allocation where the traffic

descriptors are updated from the stat information sent by the ONU where information can be

the length of a queue (see column 2 lines 1 – 40, column 3 lines 18 – 30, and column 4 line 29

– 43). Therefore the claims are rejectable under Kim.

Conclusion

6.   **Examiner's Note**: Examiner has cited particular paragraphs or columns and line numbers

in the references applied to the claims above for the convenience of the applicant. Although the

specified citations are representative of the teachings of the art and are applied to specific

limitations within the individual claim, other passages and figures may apply as well. It is

respectfully requested from the applicant in preparing responses, to fully consider the references

in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

7.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary Mui whose telephone number is (571) 270-1420. The examiner can normally be reached on Mon. - Thurs. 9 - 3 EST.
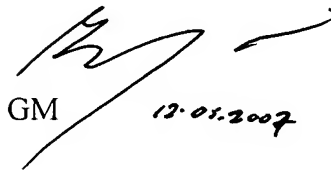
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be

obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GM /3·0/·200?

RICKY Q. NGO
SUPERVISORY PATENT EXAMINER